Appendix A: Workshop Training for Module 4

EMS Guide Meat Processing

Determining Significant Environmental Aspects and Setting Objectives and Targets

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What Are We Doing Today?

- Determination of Significance.
- Example Procedures / Application.
- Objectives and Targets (O & Ts).
- Set some O & Ts.
- Homework.

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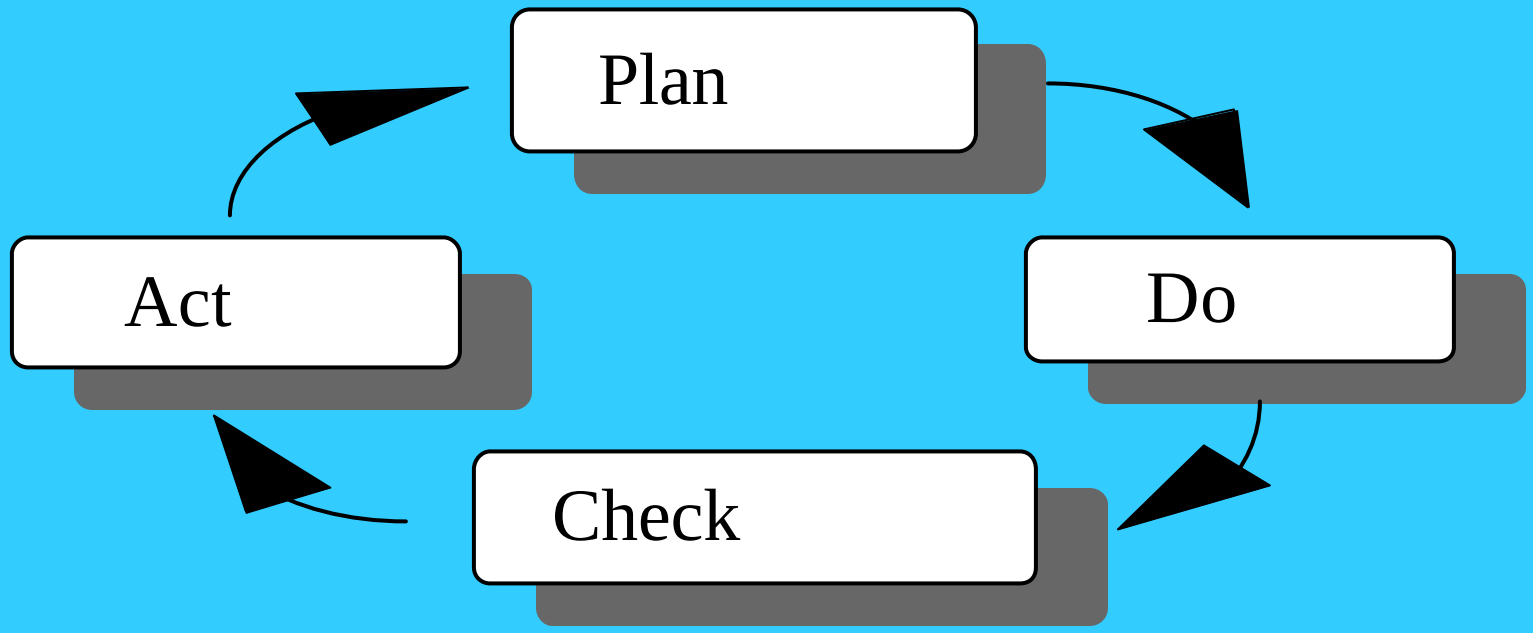
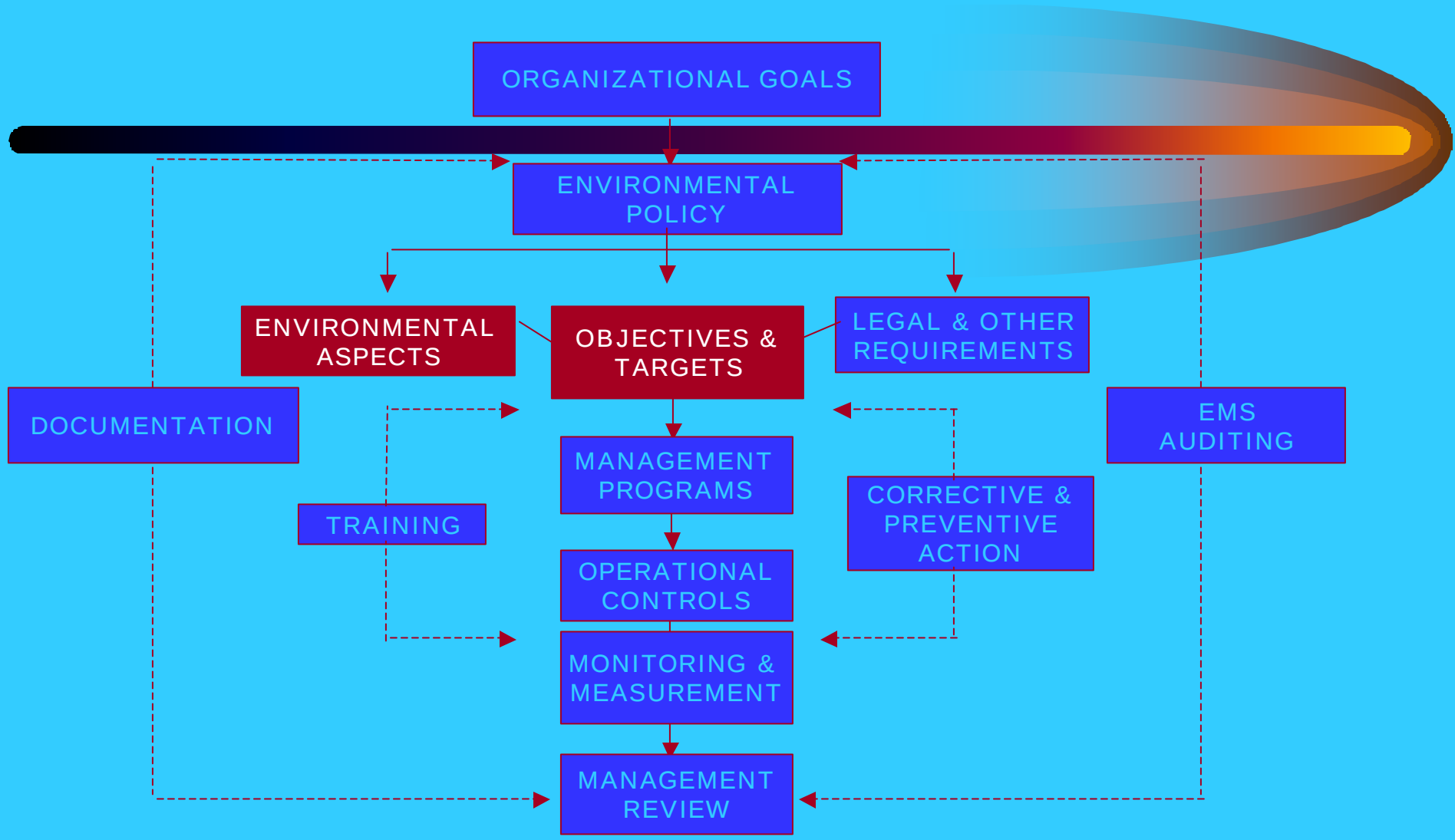
What Have Pilot Sites Learned To Date?

- Interfacing with management; getting buy in.
- Writing procedures, content and clarity while retaining flexibility.
- Core team composition - what makes the best team so aspect identification works?

Remember the Context



Relationship Among Environmental Management System Elements



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Identifying Significant Environmental Aspects

1. Identify Activities Products, Services
2. Identify Related Environmental Aspects
3. Assess Level of Control or Influence
4. Identify Associated Environmental Impacts
5. Determine Significance

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Determining Significance

- Significant **aspects** have significant **impacts** on the environment.
- Need to prioritize aspects to help you determine which one(s) to focus your efforts on.

HACCP Parallel

- HACCP requires a hazards evaluation
  - The team decides which potential hazards must be addressed in the HACCP plan.
  - Each hazard is evaluated for Severity and Likelihood of Occurrence.
  - Severity (impact, magnitude and duration).
  - Likelihood (experience, epidemiological data, and other technical data).
  - Also consider short versus long term exposure.

Determination of Significance

- Determining significance focuses on a process of **ranking** and **prioritization**.
- Significance will reflect the unique value system of the organization.

Determine Significance

- Must have a method to determine significance.
- Must apply the method to all aspects (consistency).
- Another person / group using the method should reach the same results (repeatability).
- Significant aspects are the ones that will be the focus of management efforts to improve / change.

Determine Significance

- The significance of the impacts must be considered during:
  - current and relevant past activities, products, and services;
  - normal operating conditions;
  - abnormal operating conditions;
  - start up;
  - shut down; and
  - emergency situations.
- Remember when an impact is significant, it's associated aspect needs to be managed.

Determine Significance

Methods commonly rely on three basic steps:

- Identify perspectives to consider when determining significance;
- Set criteria for each perspective for judging significance; and
- Establish a repeatable means to apply the criteria.

Typical Perspectives

- Legal requirements.
- Corporate commitments - internal standards, compliance with principles or codes of practice.
- Impact on the environment.
- Impact on the organization's image.
- Impact on social environment.
- Impact on business viability.
- Community concerns.

Criteria for Evaluating Significance

- Criteria must be defensible.
- Typical criteria include:
  - Scale,
  - Severity, and
  - Duration.

Apply the Criteria

- Determine how you will scale and weight these criteria, e.g.
  - low, medium, high
  - 1 - 5
- Where:
  - LOW Significance = small, temporary, low impact.
  - HIGH Significance = large, permanent, high impact.
- Determine how to aggregate scores.
- Determine the significance threshold.

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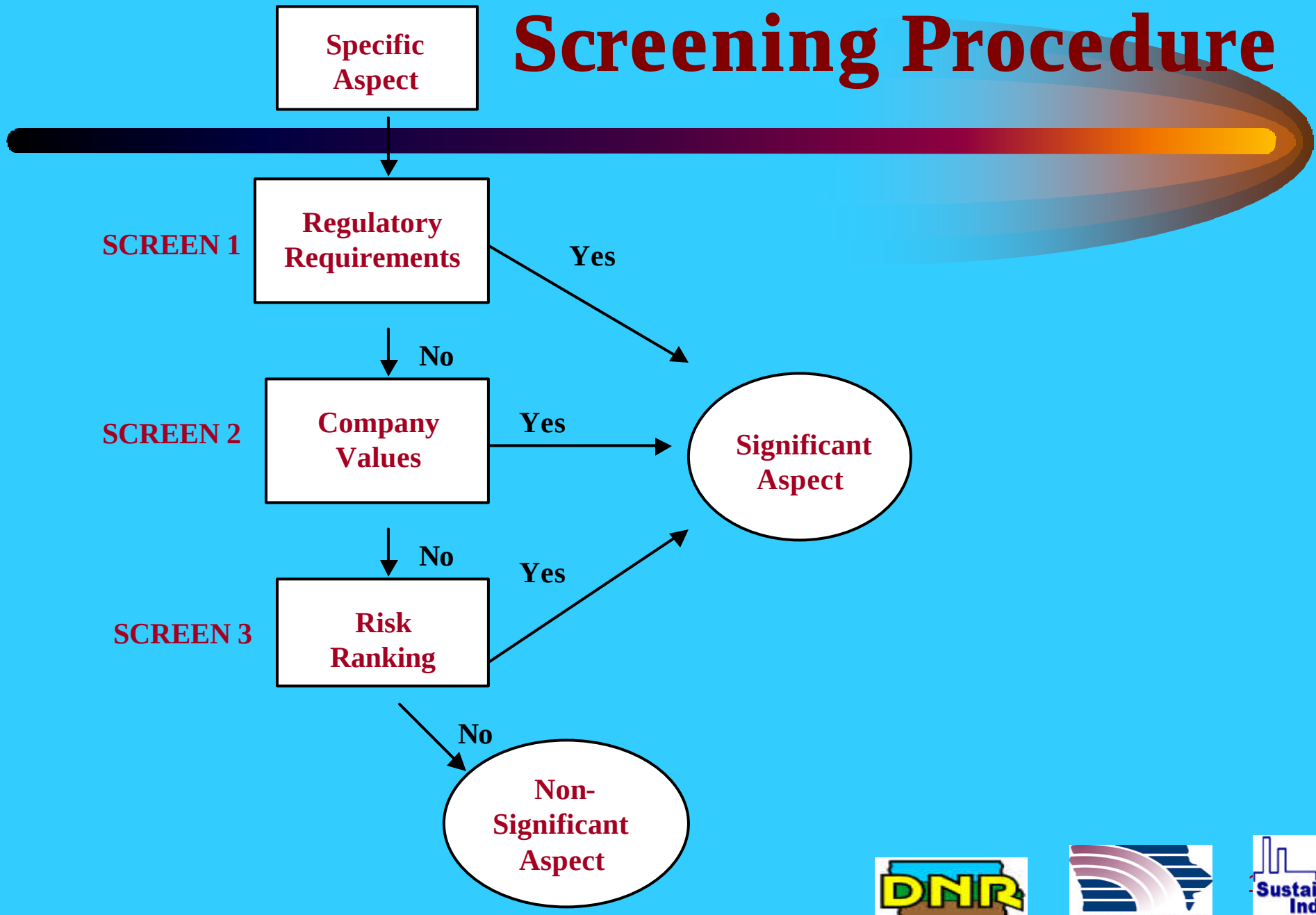
Options and Considerations

- Each organization has unique considerations in it's significance procedure (to reflect it's unique situation).
- Be sure management understands what overall influences your procedure is designed to promote.
- Procedures that allow a ratcheting up over time.

Example Procedure 1

- Significance is determined by subjecting each grouped aspect to a screening process (yes/no filters) in the sequence given below.

Screening Procedure



Screen 1

Regulatory Requirements

- Environmental aspects that are subject to legislation and regulation, but are not being met (known non-compliance), are **significant**.

Screen 2

Unique Value System of the Company

- Environmental aspects are deemed **significant** based upon the value system of the company
- May include:
  - corporate commitments and requirements;
  - financial operations and business requirements; and
  - views of interest parties, such as stockholders, community groups, regulatory agencies and environmental groups, etc.

Activity 1: Determining Significance

- Select three of your aspects.
- Evaluate the aspect in light of Step1 and 2 for the flow chart.
- Be prepared to share corporate evaluation.

Screen 3

Risk Ranking

- A single, numerical risk rating (between 1 and 25) is calculated for each aspect at this stage.
- Aspect is classified as:
  - significant (equal to or more than N points), or
  - non-significant (less than N points).
  - Changing N can ratchet process in the future.

Other Screens?

- Organizations might decide to have additional screens before an aspect is considered to be non-significant.
- With more screens a potentially greater number of aspects may be considered significant.

Risk Rating Process

- Product of two variables:

  Consequence * Relative Probability

  where,

  Consequence refers to the consequence of the aspect in terms of the magnitude of the associated impact.

  Relative Probability refers to the likelihood of occurrence of the impact associated with the aspect.

Consequence Rating

- Two impact attributes are considered:

a) Impact intensity, and

Assigned values:

1- Low 3- High, or

2- Moderate 4- Very High

b) Geographic extent and duration

Assigned values:

0- Low 1- High

Consequence Rating

- The intensity and geographic extent and duration values are added to obtain the overall rating.

1 - Negligible (Low intensity, Low extent and duration)

2 - Minor Impact (Low intensity, High extent and duration) or
(Moderate intensity, Low extent and duration)

3 - Moderate Impact (Moderate intensity, High extent and duration)
(High intensity, Low extent and duration)

4 - Major Impact (High intensity, High extent and duration)
(Very high intensity, Low extent and duration)

5 - Massive Impact (Very high intensity, High extent and duration)

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Relative Probability Rating

- Rating is based on the frequency of occurrence.

  1 - Unheard of in the meat processing sector

  2 - Suspended or known to occur in the sector

  3 - Incident has occurred at your plant

  4 - Occurs several times per year at your plant (i.e. up to 3 times/year)

  5 - Occurs regularly at your plant (i.e. once a month or more)

Overall Risk Rating

	Relative Probability				
Consequence	**Unheard of in sector**	**Suspected or known to occur in sector**	**Has happened at plant**	**Occurs several times/year at plant**	**Occurs regularly at plant**
Negligible	**1**	**2**	**3**	**4**	**5**
Minor	**2**	**4**	**6**	**8**	**10**
Moderate	**3**	**6**	**9**	**12**	**15**
Major	**4**	**8**	**12**	**16**	**20**
Massive	**5**	**10**	**15**	**20**	**25**

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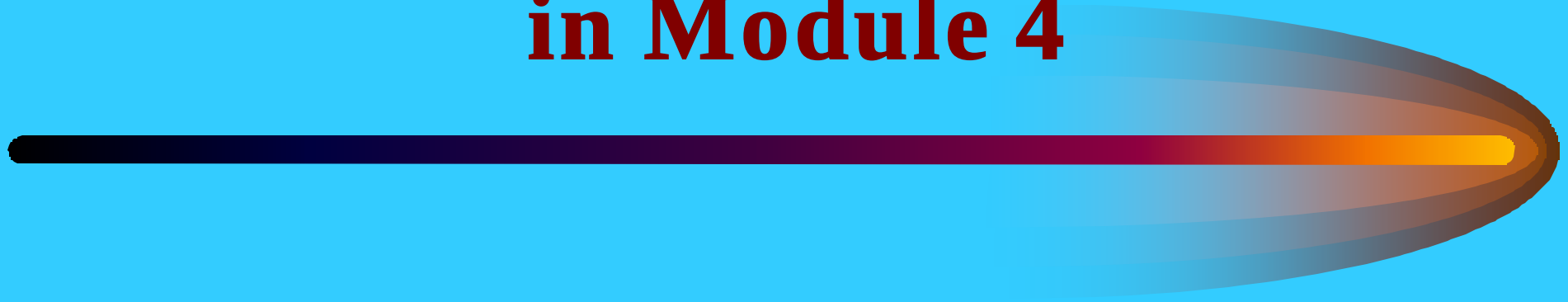
See hardcopy of Procedure 1 in Module 4



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Risk Rating Examples

EXAMPLE 1

Activity/Product/Service	Aspect	Impact
Packaging material use	Generation waste	Increased disposal to landfill
	from packaging	Air, surface, groundwater contamination from landfill

Consequence Rating

a) impact intensity - 2 (moderate)

b) geographic extent and duration - 0 (low)

Overall score 2 + 0 = 2

2 - Minor impact (Moderate intensity, Low extent and duration: 2 + 0 = 2)

Relative Probability Rating

The probability ranking is 5 (occurs regularly at your site(s)).

Risk Rating

Consequence * Relative Probability

2 * 5 = 10

Based upon an arbitrary rating system which considers that those aspects with a rating of more than 11 are significant, this aspect will an overall rating of 10 would be labeled non-significant.

Risk Rating Examples

EXAMPLE 2

Activity/Product/Service	Aspect	Impact
Meat smoking	Air pollutants generated	Affects air quality and poses a risk to human health

Consequence Rating

a)impact intensity - 3 (high)

b) geographic extent and duration - 1 (high)

Overall score 3 + 1 = 4

4 - Major impact (High intensity, High extent and duration: 3 + 1 = 4)

Relative Probability Rating

The probability ranking is 5 (occurs regularly at your site(s)).

Risk Rating

Consequence * Relative Probability

4 * 5 = 20

Given the same rating system as in example 1, this aspect with an overall rating of 20 would be considered significant.

Risk Rating Examples

See Module 4, Table 4-1:

Significance Spreadsheet

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Activity 2: Determining Risk

- What factors should be considered when determining the significance and risk rating of water pollution from wastewater discharge?

Example Procedure 2

- Significant if it meets one or more criteria.
- First two criteria must be applied to all aspects.
- If not significant under first two criteria, examine against three more.

Example Procedure 2

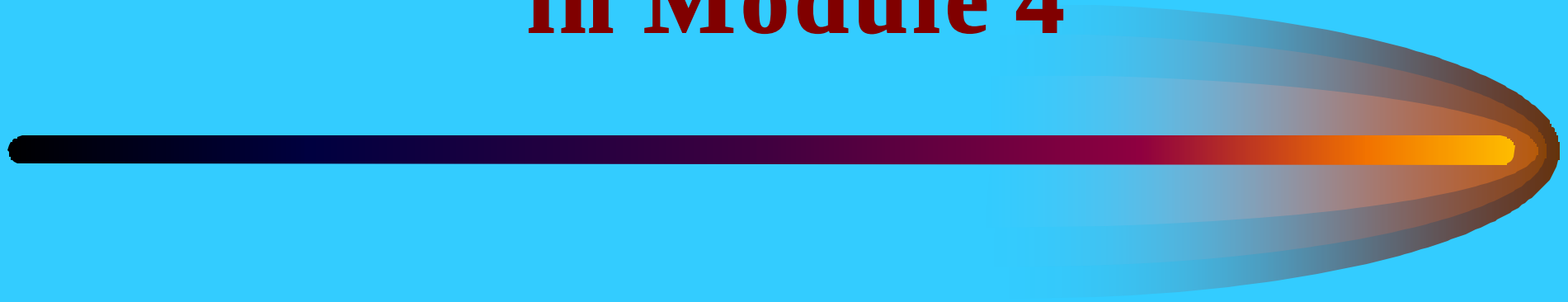
- Significant if aspect has an impact
  1. Subject to regulations that address significant impacts.
     - Specify controls and conditions
     - Information must be provided to authorities
     - Periodic inspections / enforcement
  2. Subject to company goals, directives, and commitments.
  3. If 1 or 2 don't apply is subject to community concerns apply.
  4. If 1 or 2 don't apply has high potential for pollution prevention or resource use reduction based on technical or business conditions.

Example Procedure 2

- Significant if aspect has an impact

5. If 1 or 2 don't apply is associated with releases to the environment from high environmental loading due to one or more of:
   - Toxicity,
   - Amount of release,
   - Amount of consumption,
   - Frequency, and/or
   - Severity.

See hardcopy of Procedure 2 in Module 4



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Example Procedure 2 vs. 1

- A series of up to 4 screens.
- Then a set of 5 possible categories of impact / potential impact, magnitude related criteria.
- No prescribed numerical risk ranking process, relies on professional judgment to decide if step 5 applies or does not.
- Both result in need for records of how significance was determined.

Activity 3: Determining Risk Ratings

- Identify factors that influence risk ratings for anhydrous ammonia storage.
- Where would you find information?

Discussion of Pilot Procedures

- Company values reflected?
- Have factors to consider in evaluation processes been defined?
- Are environmental aspects that are subject to legislation and regulation, but are not being met (known non-compliance) considered significant?

Objectives and Targets

- Objectives and targets help an organization **translate purpose into action**.

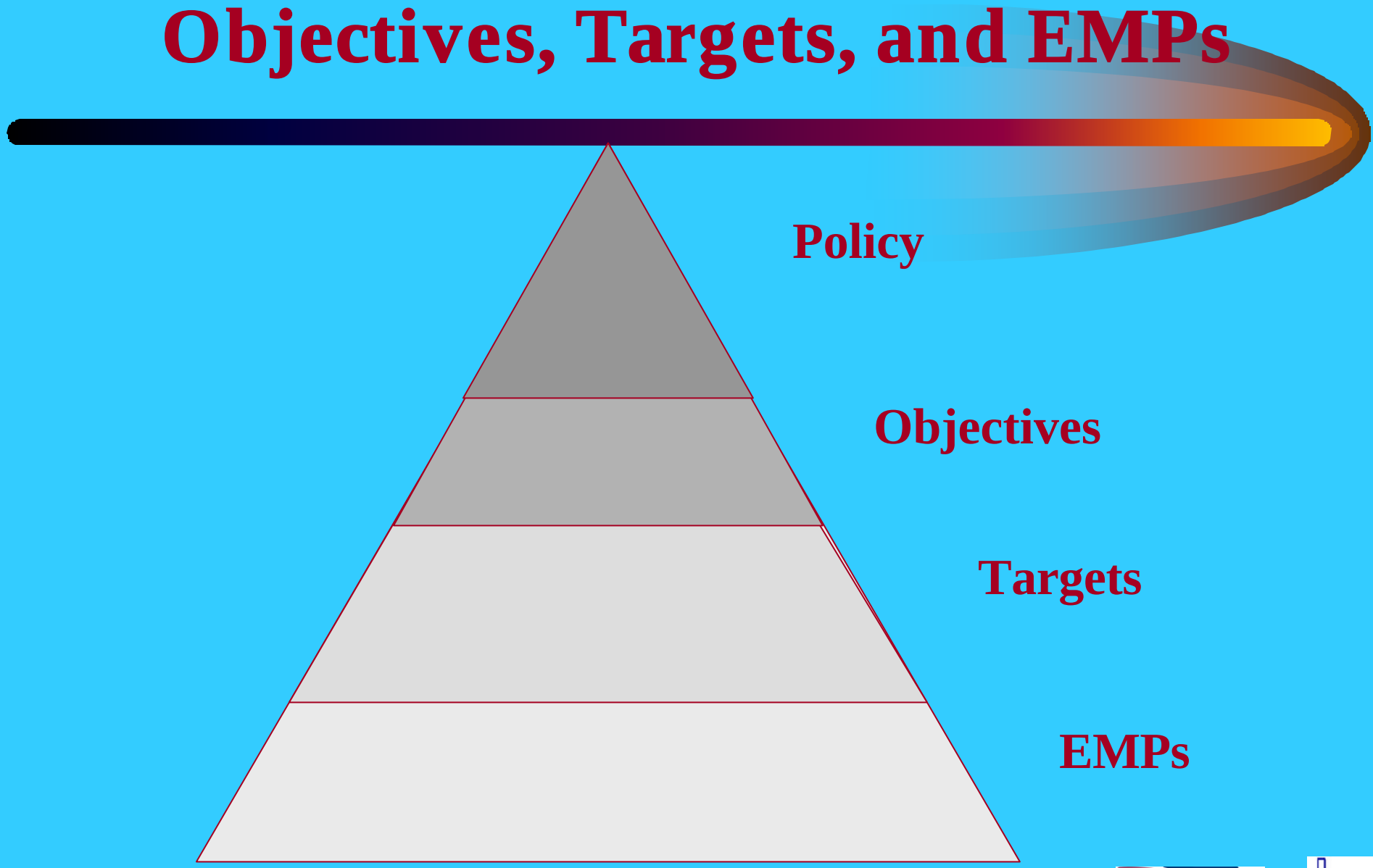
Definition - Objective

- Overall environmental goal.
- Arises from the environmental policy.
- Set by the organization itself.
- Quantified where practicable.

Definition - Target

- Detailed performance requirement.
- Quantified where practicable.
- May apply to the whole organization or parts of it.
- Arises from environmental objectives.
- Must be set and met so as to achieve objectives.

Interrelationship of Policy, Objectives, Targets, and EMPs



Objective and Target Examples

Objectives	Targets
Reduce energy usage	Reduce electricity use by 10% in 2002 Reduce natural gas use by 15% in 2002
Reduce usage of hazardous chemicals	Eliminate use of CFCs by 2003 Reduce use of high-VOC paints by 25%
Improve employee awareness of environmental issues	Hold monthly awareness training courses Train 100% of employees by end of the year
Improve compliance with wastewater discharge permit limits	Zero permit limit violations by the end of 2002

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What to Consider In Setting Objectives and Targets

- Legal and other requirements.
- Significant environmental aspects.
- Technological and financial options.
- Operational and business requirements.
- Views of interested and affected parties.

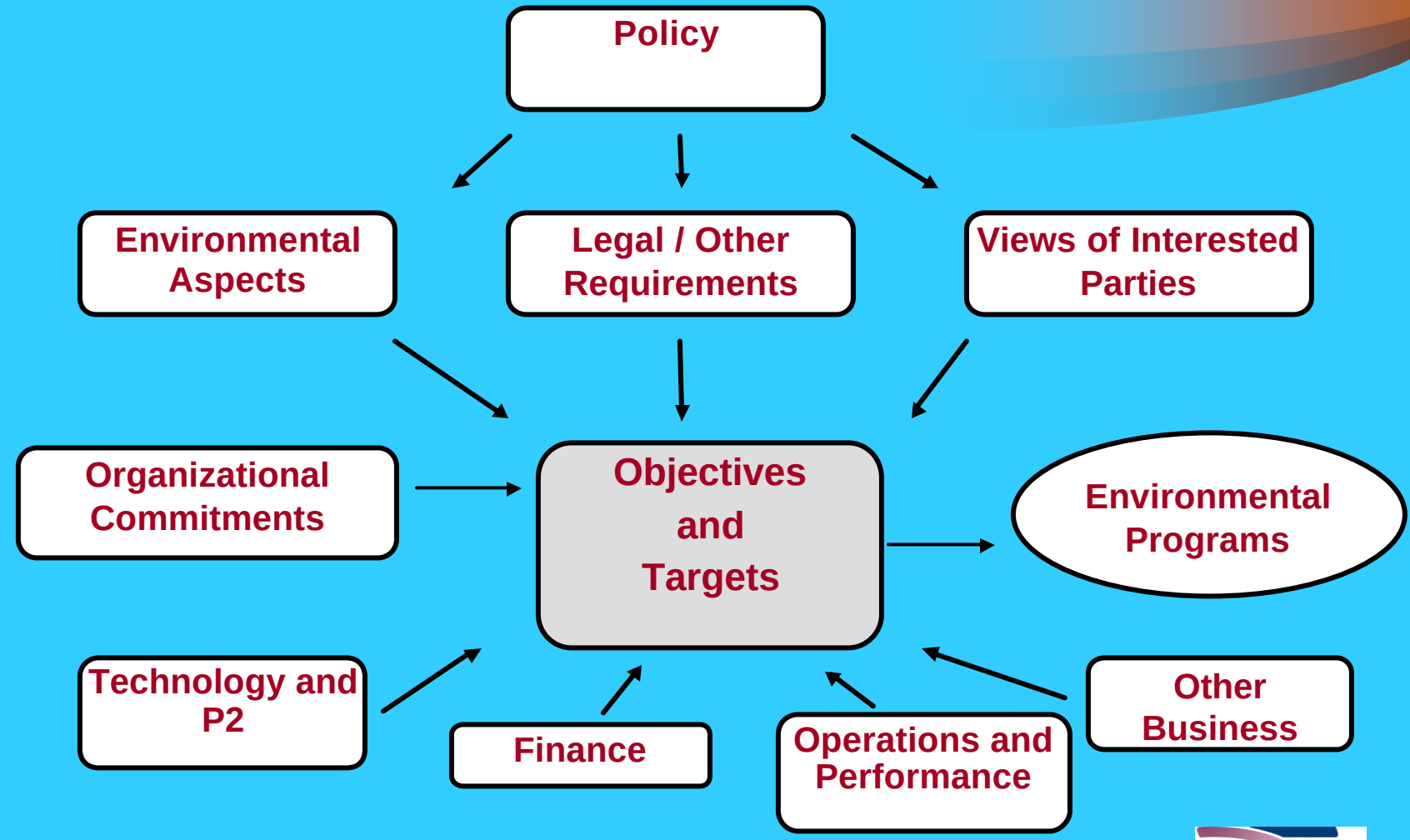
What to Consider In Setting Objectives and Targets

- Examine your current management programs and operational controls.
- Use what you have and add/modify.
- Design your objective and target process for both how you will do the first time and how you will review and improve over time.

Other Considerations

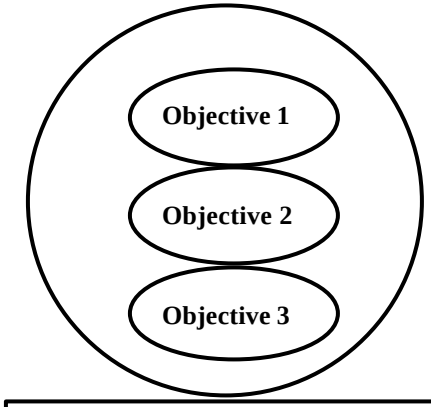
- When objectives and targets are set the organization should consider establishing measurable environmental performance indicators.
- Objectives and targets should be periodically reviewed and revised to reflect desired improvements in environmental performance.
- Objectives and targets must be consistent with the environmental policy - this includes the commitments to continual improvement and prevention of pollution.

Considerations for Setting Objectives and Targets



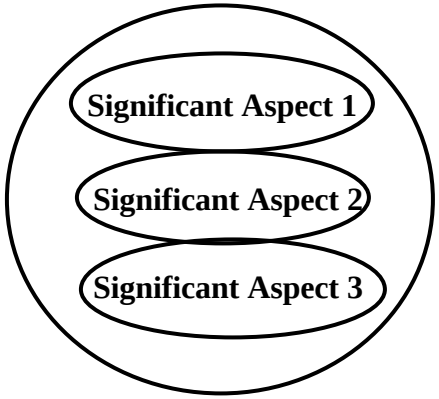
Significant Aspects and Objectives and Targets

SIGNIFICANT ASPECTS

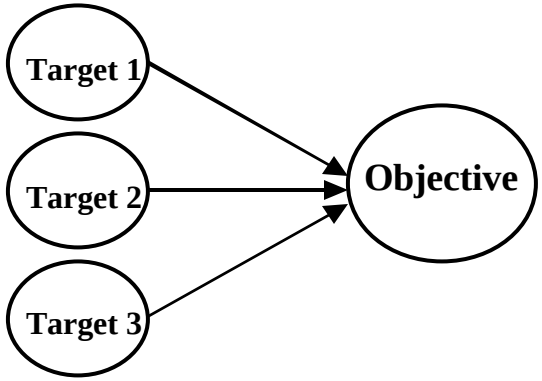


- **Multiple objectives may need to be established for a single significant aspect.**

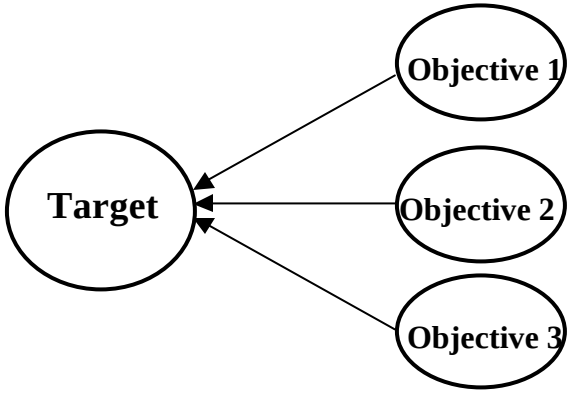
OBJECTIVES



- **One objective may satisfy several significant aspects.**



- **Multiple targets may be needed to achieve a single objective.**



- **One target may satisfy several objectives.**

Setting Environmental Objectives

- All significant aspects need objectives.
- Objectives must be realistic and achievable.
- Must know when objective has been achieved.
- Provide basis for understanding improvements to environmental performance.
- Be selective, it is easier to increase a work load than decrease it.

Types of Objectives

- Management objectives:
  - e.g. conduct of internal audits
  - design products to minimize their impact on the environment
  - promote environmental awareness among employees
- Environmental performance objectives:
  - e.g. reduce waste and the depletion of natural resources
  - reduce or eliminate the release of pollutants into the environment
  - control the environmental impact of sources of raw material

Activity 4: Writing Objectives

- Select three significant aspects and write an objective for each that reflects your company's environmental policy.

Description of Environmental Targets

- Support objectives.
- More detailed than objectives.
- May refer to steps in achieving objectives.
- Size is not prescribed.
- Should be quantified.

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Targets

- Simple and Understandable.
- Objective.
- Verifiable.
- Linked to Production.
- Relevant.

See hardcopy of O & T Procedure in Module 4

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Activity 5: Establishing Measurable Targets

- Review the 3 objectives from Activity 4. Write a quantifiable target for each. Identify how this will be measured and how the data will be collected.

Homework

- Develop significance procedure.
- Apply procedure to all aspects.
- Define how you will set objectives and targets.
- Set objectives and targets.
- Ensure adequate records of these steps.